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### NOTICE OF ALLOWANCE AND FEE(S) DUE

24112

7590

08/08/2008

COATS & BENNETT, PLLC 1400 Crescent Green, Suite 300 Cary, NC 27518 EXAMINER

PANWALKAR, VINEETA S

ART UNIT PAPER NUMBER

2611

DATE MAILED: 08/08/2008

	APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
•	10/736,122	12/15/2003	Ali S. Khayrallah	4015-5158	3589

TITLE OF INVENTION: METHOD FOR PATH SEARCHING AND VERIFICATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	11/10/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

#### HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

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II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

### PART B - FEE(S) TRANSMITTAL

### Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE

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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where

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COATS & BENNETT, PLLC 1400 Crescent Green, Suite 300 Cary, NC 27518			S	hereby certify that that that the service value of the Mai	nis Fee( with suf 1 Stop	ficient postage for firs	g deposited with the United st class mail in an envelope above, or being facsimile
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							(Signature)
			L				(Date)
APPLICATION NO.	FILING DATE		FIRST NAMED INVENTO	)R	АТТО	RNEY DOCKET NO.	CONFIRMATION NO.
10/736,122 TITLE OF INVENTION	12/15/2003 I: METHOD FOR PATH	SEARCHING AND VE	Ali S. Khayrallah RIFICATION			4015-5158	3589
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nonprovisional	NO	\$1440	\$300	\$0		\$1740	11/10/2008
EXAM	IINER	ART UNIT	CLASS-SUBCLASS	S			
PANWALKAI	R, VINEETA S	2611	375-316000	_			
CFR 1.363).  Change of corresp Address form PTO/SI  "Fee Address" ind PTO/SB/47; Rev 03-( Number is required.  3. ASSIGNEE NAME A PLEASE NOTE: Un	ND RESIDENCE DATA less an assignee is ident h in 37 CFR 3.11. Comp	nge of Correspondence  I Indication form and Use of a Customer	data will appear on the	to 3 registered patentively, agle firm (having as a gent) and the nanttorneys or agents. If the printed.  Type)  patent. If an assignment.	a memb nes of u no nam	p to le is 3dentified below, the do	ocument has been filed for
Please check the appropr	riate assignee category or	categories (will not be pr	rinted on the patent):	🗖 Individual 📮 C	orporati	ion or other private gro	oup entity 🗖 Government
4a. The following fee(s) are submitted:  ☐ Issue Fee ☐ Publication Fee (No small entity discount permitted) ☐ Advance Order - # of Copies			4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)  ☐ A check is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number (enclose an extra copy of this form).				
	ns SMALL ENTITY statu	is. See 37 CFR 1.27.	☐ b. Applicant is no l				
NOTE: The Issue Fee an interest as shown by the	d Publication Fee (if requeecords of the United Sta	uired) will not be accepte tes Patent and Trademark	d from anyone other tha COffice.	n the applicant; a reg	istered :	attorney or agent; or th	ne assignee or other party in
Authorized Signature				Date			
Typed or printed name			_				
This collection of inform an application. Confiden submitting the complete this form and/or suggest Box 1450, Alexandria, V Alexandria, Virginia 223	nation is required by 37 C tiality is governed by 35 d application form to the ions for reducing this but /irginia 22313-1450. DC 313-1450.	FR 1.311. The informatic U.S.C. 122 and 37 CFR USPTO. Time will vary rden, should be sent to th O NOT SEND FEES OR	on is required to obtain of 1.14. This collection is a depending upon the ince Chief Information Off COMPLETED FORMS	or retain a benefit by estimated to take 12 lividual case. Any co icer, U.S. Patent and TO THIS ADDRES	the publ minutes omment Traden S. SENI	lic which is to file (and s to complete, includin is on the amount of tin nark Office, U.S. Depa D TO: Commissioner f	I by the USPTO to process) g gathering, preparing, and me you require to complete artment of Commerce, P.O. for Patents, P.O. Box 1450,

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COATS & BENNETT, PLLC 1400 Crescent Green, Suite 300			PANWALKAR, VINEETA S		
			ART UNIT	PAPER NUMBER	
Cary, NC 27518			2611		
			DATE MAILED: 08/08/2008		

### Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 863 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 863 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

	Application No.	Applicant(s)
	10/736,122	KHAYRALLAH ET AL.
Notice of Allowability	Examiner	Art Unit
	VINEETA S. PANWALKAR	2611
	VINEETA S. FANWALKAK	2011
The MAILING DATE of this communication apper All claims being allowable, PROSECUTION ON THE MERITS IS herewith (or previously mailed), a Notice of Allowance (PTOL-85) NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RI of the Office or upon petition by the applicant. See 37 CFR 1.313	(OR REMAINS) CLOSED in this ap or other appropriate communication IGHTS. This application is subject to	plication. If not included  n will be mailed in due course. <b>THIS</b>
1. $\boxtimes$ This communication is responsive to <u>response filed 6/6/08</u> .		
2. The allowed claim(s) is/are <u>1, 3-27, 39-42, 44-58, 60-80, 86</u>	8-92, 94-120 and 122-125 <sub>.</sub>	
3. Acknowledgment is made of a claim for foreign priority ur	nder 35 U.S.C. § 119(a)-(d) or (f).	
a) ☐ All b) ☐ Some* c) ☐ None of the:		
<ol> <li>Certified copies of the priority documents have</li> </ol>	e been received.	
<ol><li>Certified copies of the priority documents have</li></ol>	been received in Application No	·
<ol><li>Copies of the certified copies of the priority do</li></ol>	cuments have been received in this	national stage application from the
International Bureau (PCT Rule 17.2(a)).		
* Certified copies not received:		
Applicant has THREE MONTHS FROM THE "MAILING DATE" noted below. Failure to timely comply will result in ABANDONM THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.		complying with the requirements
4. A SUBSTITUTE OATH OR DECLARATION must be subm INFORMAL PATENT APPLICATION (PTO-152) which give		
5. CORRECTED DRAWINGS ( as "replacement sheets") mus	st be submitted.	
(a) ☐ including changes required by the Notice of Draftspers	on's Patent Drawing Review ( PTO-	948) attached
1) 🔲 hereto or 2) 🔲 to Paper No./Mail Date		
(b) ☐ including changes required by the attached Examiner's Paper No./Mail Date	s Amendment / Comment or in the C	Office action of
Identifying indicia such as the application number (see 37 CFR 1 each sheet. Replacement sheet(s) should be labeled as such in the		
6. DEPOSIT OF and/or INFORMATION about the deposit attached Examiner's comment regarding REQUIREMENT		
Attachment(s) 1. ☐ Notice of References Cited (PTO-892)	5. ☐ Notice of Informal F	Patent Application
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)	6. ☐ Interview Summary	• •
_ ,	Paper No./Mail Da	te
3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date	7. Examiner's Amendr	ment/Comment
Examiner's Comment Regarding Requirement for Deposit of Biological Material	8. 🛛 Examiner's Stateme	ent of Reasons for Allowance
,	9.	

### **DETAILED ACTION**

## Allowable Subject Matter

- 1. Claims 1, 3-27, 39-42, 44-58, 60-80, 88-92, 94-120 and 122-125 are allowed.
  - The following is an examiner's statement of reasons for allowance:
- 1a. Regarding claim 1, prior art of record fails to disclose a search method for identifying one or more candidate delays for a receiver comprising: generating a hierarchical delay tree for the received signal comprising a plurality of delay nodes in a lowermost level of the delay tree linked by branches and one or more linking nodes to a root node at the highest level of the delay tree, wherein each delay node is associated with one of the signal delays; searching through the delay tree to identify one or more surviving delay nodes; and selecting one or more surviving delay nodes as the candidate delays, in combination with each and every other limitation of the claim.
- 1b. Claims 3-27 are allowed as being dependent on claim 1.
- 1c. Regarding claim 39, prior art of record fails to disclose a method for selecting one or more finger delays for a RAKE receiver comprising generating a hierarchical delay tree comprising a plurality of delay nodes in a lowermost level of the delay tree linked by branches and one or more linking nodes to a root node at the highest level of the delay tree, wherein each delay node is associated with a signal delay; searching through the delay tree to identify one or more surviving

delay nodes; adding the candidate delays corresponding to the surviving delay nodes to a candidate pool; and selecting one or more finger delays for the RAKE receiver from the candidate pool, in combination with each and every other limitation of the claim.

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- 1d. Claims 40-42 and 44-57 are allowed as being dependent on claim 39.
- 1e. Regarding claim 58, prior art of record fails to disclose a delay searcher for a receiver to search a received signal having a plurality of signal images corresponding to a plurality of signal delays for one or more candidate delays, the delay searcher comprising: a tree generator to generate a hierarchical delay tree comprising: a plurality of delay nodes in a lowermost level of the delay tree, wherein each delay node is associated with a signal delay; a root node at the highest level of the delay tree; one or more linking nodes disposed between the root node and the plurality of delay nodes; and branches that link the plurality of delay nodes to the root node via the linking nodes; and a tree searcher to search through the delay tree to identify one or more surviving delay nodes, wherein the one or more surviving delay nodes correspond to the one or more candidate delays.
- 1f. Claims 60-80 are allowed as being dependent on claim 58.
- 1g. Regarding claim 88, prior art of record fails to disclose a RAKE receiver in a wireless network comprising: a delay searcher to generate and search through a hierarchical delay tree based on delay nodes associated with the signal delays to identify one or more surviving delay nodes, wherein each surviving delay node

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corresponds to a candidate delay; and wherein the RAKE receiver selects one or more RAKE finger delays from the candidate delays, in combination with each and every other limitation of the claim.

- 1h. Claims 89-92 and 94-118 are allowed as being dependent on claim 88.
- 1i. Regarding claim 119, prior art of record fails to disclose a circuit for processing a received signal having one or more signal images, each signal image having a corresponding signal delay, the circuit comprising search circuitry to generate and search through a hierarchical delay tree based on delay nodes associated with the signal delays to identify one or more surviving delay nodes, wherein each surviving delay node corresponds to a candidate delay.
- 1j. Claims 120 and 122-125 are allowed as being dependent on claim 119.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### **Contact Information**

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VINEETA S. PANWALKAR whose telephone number is (571)272-8561. The examiner can normally be reached on M-F 8:30-

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Art Unit: 2611

5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR

only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

/V. S. P./

Examiner, Art Unit 2611

/Mohammad H Ghayour/

Supervisory Patent Examiner, Art Unit 2611